

115 ABSTRACT

116 The invention is a self-contained process shutdown device that detects  
117 abnormal pressures and initiates shutdown by removing the pneumatic or hydraulic  
118 pressure needed for a given process or flow to continue. The process' pressure is  
119 detected by means of a switch-gauge (a pressure gauge with high and low alarm  
120 electrical contacts) which has a pressure sensing port connected to the monitored  
121 pressure. The contacts from the switch-gauge are connected to an electronic logic  
122 circuit that sends one or more shutdown pulses to trip a pulse driven solenoid and  
123 initiate the shutdown. This device provides indicator lamps to show statuses and  
124 alarms as well as switch or pushbuttons to activate the "Reset" and "Test" functions.

125 The electrical power is supplied by a power module that is constituted of battery  
126 cells connected in such way that it provides a dual voltage output to feed the electronic  
127 logic separate from the pulse driven solenoid driver circuit. Alternatively, the power  
128 module may be constituted of a circuit made of a photovoltaic module, voltage  
129 regulator circuits and three main capacitors with enough capacitance to keep the  
130 electronic logic circuit and the solenoid valve driver circuit operating throughout the  
131 night or longer.